Listing of Claims:

1. ~ 11 (Canceled)

12. (Currently Amended) A method for forming an interconnection structure for flip-chip attachment of microelectronic device chips to packages, comprising:

forming an adhesion ~~a barrier~~ layer over a substrate;

forming a seed layer over the ~~an~~ adhesion layer ~~over the barrier layer~~;

forming a resist layer over the seed ~~adhesion~~ layer, the resist layer having an opening that exposes the seed ~~adhesion~~ layer;

forming a first solderable layer over the seed ~~adhesion~~ layer through the opening in the resist layer, wherein the first solderable layer comprises Cu;

forming a diffusion barrier layer over the first solderable layer through the opening in the resist layer, wherein the diffusion barrier layer comprises CoWP;

forming a second solderable layer over the diffusion barrier layer through the opening in the resist layer, wherein the second solderable layer comprises a layer of Ni having a thickness less than about 4 microns;

removing the resist layer;

removing portions of the seed ~~barrier~~ layer and the adhesion layer that extend beyond the first solderable layer, the diffusion barrier layer and the second solderable layer; and

forming at least one solder ball over the second solderable layer.

13. (Currently Amended) The method of claim 12, further comprising forming a polyimide layer around the ~~barrier layer, the~~ adhesion layer, the seed layer, the first solderable layer, the diffusion barrier layer and the second solderable layer.

14. (Currently Amended) The method of claim 12, wherein the adhesion layer is formed by sputtering ~~step of forming the barrier layer comprises sputtering~~.

15. (Currently Amended) The method of claim 12, wherein the seed layer is formed by sputtering ~~step of forming the adhesion layer comprises sputtering~~.

16. (Currently Amended) The method of claim 12, wherein the ~~step of forming~~ the first solderable layer is formed by ~~comprises~~ electroplating.

17. (Currently Amended) The method of claim 12, wherein the ~~step of forming the~~ diffusion barrier layer is formed by ~~comprises~~ electroless deposition.

18. (Currently Amended) The method of claim 12, wherein the ~~step of forming the~~ second solderable layer is formed by ~~comprises~~ electroplating.

19. ~ 21. (Canceled)

22. (Currently Amended) The method of claim 12, wherein the ~~step of forming~~ the solder ball comprises ~~forming the~~ a lead-free solder ball formed by ~~at least one of~~ electroplating, solder screening, exchange plating, ~~and electroless~~ or molten solder injection deposition.

23. (Currently Amended) A method for forming an interconnection structure for flip-chip attachment of microelectronic device chips to packages, comprising:

forming an adhesion ~~a barrier~~ layer over a substrate;

forming a seed layer over the ~~an~~ adhesion layer ~~over the barrier layer;~~

forming a first solderable layer over the seed ~~adhesion~~ layer, wherein the first solderable layer comprises Cu;

forming a diffusion barrier layer over the first solderable layer, wherein the diffusion barrier layer comprises CoWP;

forming a second solderable layer over the diffusion barrier layer, wherein the second solderable layer comprises a layer of Ni having a thickness less than about 4 microns; and

forming at least one solder ball over the second solderable layer.

24. (Currently Amended) The method of claim 23, wherein the step of forming the first solderable layer comprises:

forming a resist layer over the seed ~~adhesion~~ layer, the resist layer having an opening that exposes the seed ~~adhesion~~ layer; and

electroplating the first solderable ~~adhesion~~ layer over the seed ~~adhesion~~ layer through the opening in the resist layer.

25. (Original) The method of claim 24, wherein the step of forming the diffusion barrier layer comprises electroless deposition of the diffusion barrier layer over the first solderable layer through the opening in the resist layer.

26. (Original) The method of claim 25, wherein the step of forming the second solderable layer comprises electroplating the second solderable layer over the diffusion barrier layer through the opening in the resist layer.

27. (Original) The method of claim 25, further comprising:

removing the resist layer after the first solderable layer, the diffusion barrier layer and the second solderable layer are formed; and

removing portions of the barrier layer and the adhesion layer that extend beyond the first solderable layer, the diffusion barrier layer and the second solderable layer after the resist layer is removed.

28. (Original) The method of claim 23, further comprising forming a polyimide layer around the barrier layer, the adhesion layer, the first solderable layer, the diffusion barrier layer and the second solderable layer.

29. (Canceled)